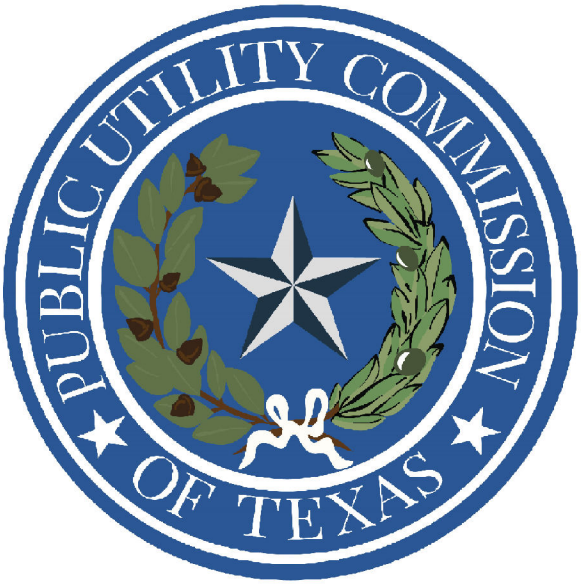

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PROJECT NO. 52373

REVIEW OF WHOLESALE ELECTRIC MARKET DESIGN	§ § §	**PUBLIC UTILITY COMMISSION OF TEXAS**

JUPITER POWER LLC'S COMMENTS ON OCTOBER 25TH COMMISSION QUESTIONS

I. INTRODUCTION

Jupiter Power LLC ("Jupiter Power") appreciates the opportunity to submit these comments as the Commission develops their Blueprint for changes to the wholesale electric market design of ERCOT. Jupiter applauds the efforts of the Public Utility Commission and of stakeholders to bring forward and diligently evaluate market design proposals.

Jupiter Power is an energy storage developer and owner/operator in the ERCOT market and therefore has a keen interest in proposed market design changes by the Public Utility Commission. Jupiter Power has invested over $200mn in the ERCOT market, with 3,500MW of energy storage projects in active development, and over 650MW-hours in operation, commissioning or construction.

Jupiter Power is supportive of a targeted, solutions-based approach to address the relative problems most efficiently, by first using existing technologies to the best of their firming abilities in order to support operational variability and secondarily by incenting more dispatchable capacity of longer duration resources to be online if/when needed for capacity, all at the lowest overall cost to the consumer.

Jupiter Power also prioritizes a continued non-discriminatory approach to market design in

Texas. While technology should not dictate reliability, reliability products should be narrowly tailored to produce desired outcomes, and should do so without stranding technology that has already been invested in. For example, in the case of battery energy storage technology in ERCOT, the length of "duration" of the resource represents the length of time that that resource could inject its full nameplate capacity onto the grid, and two-hour duration storage can be very useful to stabilize the grid at the ramp off period from a sudden outage, a high wind event or solar at sunset. In turn, that use would further encourage longer-duration storage to be available to support the grid as solar penetration increases.

II. COMMENTS COMMISSION QUESTIONS

1. The ORDC is currently a "blended curve" based on prior Commission action. Should the ORDC be separated into separate seasonal curves again? How would this change affect operational and financial outcomes?

Jupiter Power is supportive of separating the ORDC into seasonal curves. As a general principle, more granularity is more representative of statistical data and results in more accurate operational outcomes. Additionally, as ERCOT's net load peak shifts away from traditional peak load due to higher renewable penetration, operational differences between shoulder and peak seasons become more apparent. The ORDC should reflect differences in peak and shoulder seasons in order to make financial outcomes more appropriate for the respective season. Jupiter Power has also supported the idea of a seasonal HCAP/VOLL in the case of seasonal ORDC.[1]

However, in additional to separating the ODRC into separate seasonal curves, Jupiter Power also continues to support other changes to the ORDC, especially those necessitated by a

[1] "Jupiter Power LLC's Comments on the Review of Substantive Rule §25.505," filed October 28, 2021, by Jupiter

change to the HCAP.[2] Jupiter Power has supported an incremental reduction to the HCAP in conjunction with adjustments to the ORDC, specifically through raising the MCL.[3] Currently the VOLL component in the ORDC is set at the HCAP; in the absence of adjustment to any other ORDC component, a reduction in VOLL arising from a reduction in HCAP would imply lower scarcity price adders during those times when the system is most in need of additional capacity. A downward change in the HCAP therefore necessitates changes in the ORDC curve, including lifting the MCL from 2,000 MW. Jupiter Power supports the discussion heard at the October 21, 2021, Open Meeting, which included having Brattle study the ODRC curve with MCL values of 2,800 MW, 3,000 MW, and 3,200 MW and VOLL values of $4,500 and $6,000.

In alternative to the above regarding changes to the ORDC design, Jupiter Power also would support further exploration of the IMM's proposal to reshape the ORDC and decouple the HCAP from the VOLL used in the ORDC, which would shift revenues without changing the MCL of the ORDC. The IMM proposes to adjust both the HCAP and the ORDC in order to shift revenue to be realized before crisis.[4] The IMM example of decreasing the system-wide offer cap (SWCAP), while increasing the VOLL used to calculate the ORDC to a higher level like a

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Power in Docket No. 52631
http://interchange.puc.texas.gov/search/documents/?controlNumber=52631&itemNumber=28

[2] The Proposal for Publication filed October 8, 2021, in Docket No. 52631 proposes to change the HCAP in §25.505 from $9,000/MW to $4,500/MW
http://interchange.puc.texas.gov/search/documents/?controlNumber=52631&itemNumber=24

[3] "Jupiter Power LLC's Comments on the Review of Substantive Rule §25.505," filed October 28, 2021, by Jupiter Power in Docket No. 52631
http://interchange.puc.texas.gov/search/documents/?controlNumber=52631&itemNumber=28

[4] "IMM Proposals" filed October 15, 2021, by Potomac Economics in Docket No. 52373
http://interchange.puc.texas.gov/search/filings/?UtilityType=A&ControlNumber=52373&ItemMatch=Equal&DocumentType=ALL&SortOrder=Ascending

$20,000 per MWh VOLL, would create higher adders when the system is in a shortage of capacity, both incentivizing and rewarding real-time resource performance.

2. What modifications could be made to existing ancillary services to better reflect seasonal variability?

Jupiter Power would note that ERCOT's current AS procurement methodology already includes establishing hourly and monthly volumes for ancillary service procurement by month to reflect seasonal variability in monthly procurement volumes. Additionally, ERCOT further adjusted seasonal AS procurements this summer as part of a more conservative way of operations, increasing summer peak Responsive Reserve Service (RRS) and Non-Spin, based on daily net load variability.

Jupiter Power also notes that Real-time Co-optimization (RTC) will increase the efficiency of AS procurement, and supports prioritizing the completed implementation of Real-time Co-optimization, in which ERCOT would optimize energy and ancillary services in five-minute intervals, every day of every season.

Jupiter Power supports maintaining existing ancillary service eligibility as related to the existing ancillary service suite's relative procurement levels per service. In their September 30, 2021, comments in this docket, Hunt Energy Network proposed maintaining the link between AS eligibility and the procurement interval, citing the proposed NPRR1096 that would require a Non-Spin or ERCOT Contingency Reserve Service (ECRS) resource to have a minimum six-hour duration even though Non-Spin is a one-hour service.[5] Jupiter Power would encourage the Commission and ERCOT to continue to use current products specific to their durational

[5] "Market Design Recommendations in Response to Commissioner Guidance 3 filed on September 30, 2021," by Hunt Energy Network LLC in Docket No. 52373
http://interchange.puc.texas.gov/search/documents/?controlNumber=52373&itemNumber=139

procurement, in order to provide the frequency or capacity response needed via that service. Hunt Energy Network also raised separating and optimizing the use of AS intended to address frequency versus those intended to augment capacity. Jupiter Power agrees that the most efficient use of resources in order to firm variability capacity would optimize resources that are best suited to particular frequency problems, and free a greater amount of megawatts to otherwise be used for needed capacity.

As stated above, two-hour storage can be used to full value to stabilize the grid as ramp off periods, such as of solar at sunset, is still developing. In turn, that use would further encourage longer-duration storage to be dispatchable to the grid as solar penetration also increases. Jupiter Power would note that the more significant issue with the ramp down of solar at sunset is the associated sudden frequency drop and not the duration of ramp of capacity. RRS and FFR are currently designed to handle such a frequency drop that occurs during the sunset hour, and Energy Storage resources that provide RRS and FFR are the technology best equipped to handle the potential frequency excursion. Storage resources respond almost instantaneously, considerably quicker and with more precision than traditional thermal resources. As Commissioners have noted, the solar ramp will happen every day in ERCOT, as solar penetration increases. By using storage to address that daily frequency dip, much closer in time to its occurrence, fewer megawatts will be required from resources that would need a longer lead time to address that short-duration frequency dip. For a daily occurring event, ERCOT can take

advantage of the technology diversity in the stack and ensure that longer lead-time MWs are freed up to be available for bigger variations in resource availability.

3. ***Should ERCOT develop a discrete fuel-specific reliability product for winter? If so, please describe the attributes of such a product, including procurement and verification processes.***

    a. ***How long would it take to develop such a product?***
    b. ***Could a similar fuel-based capability be captured by modifying existing ancillary services in the ERCOT market?***

Jupiter Power would prefer the development of a new product (s) to provide attributes desired for a fuel-specific reliability product for winter over modifying existing ancillary services in the ERCOT market. Products like non-spin and ECRS should be used as designed – piling on procurement of these services, which over the summer months resulted in the commitment of significantly higher volumes of out-of-merit RUC capacity, simply increases the overall costs of Ancillary Services, reduces overall energy market revenues for resources that do provide MWs in real-time, and does not necessarily solve the structural supply-side problem that a fuel-specific product is trying to address in the first place. Existing Ancillary Services in ERCOT were designed on technology-neutral premises and should continue to be used as such.

As for specific attributes and implementation time, Jupiter Power would defer to those generation owners relevant to the fuel-specific product and would reserve the opportunity to comment on a specific product.

4. ***Are there alternatives to a load serving entity (LSE) Obligation that could be used to impose a firming requirement on all generation resources in ERCOT?***

Jupiter Power believes there are more targeted approaches to a firming requirement that could be taken than an LSE Obligation, i.e., a scalpel versus a hammer to provide a firming solution for ERCOT. A longer-term obligation provides for a certain amount of capacity, regardless of performance, while firming of variability could be done with more accuracy closer

to those variable situations. Currently there are renewable forecasts available in the ERCOT market that can be used to align ramps with dispatchability. Forecasting accuracy improves significantly as forecasts get closer to real-time, and leveraging this information alongside flexible, responsive capacity to manage variation in production patterns is a more targeted way to manage intermittent supply in real-time, versus a three-year ahead requirement which may encourage the installation of large blocks of dispatchable capacity but may not provide an equivalent level of resource flexibility to provide firming. A nearer term forecast is more accurate and can allow for use of short duration products and resources that still have the ability to act for a firming requirement.

5. ***Are there alternatives to an LSE Obligation that could address the concerns raised about the stakeholder proposals submitted to the Commission?***

Jupiter Power believes that an LSE Obligation would require a study by a neutral third-party to review its appropriateness and efficacy in the ERCOT market, as well as implementation details. Jupiter Power would support review of alternative proposals at that time, such as Potomac Economics "Forward Shortage Energy Hedge" and TIEC's "Backup Reliability Service Proposal."[6] [7]

6. ***How can an LSE Obligation be designed to protect against the abuse of market power in the wholesale and retail markets?***

    a. ***Will an LSE Obligation negatively impact customer choice for consumers in the competitive retail electric market in ERCOT? Can protective measures be put in place to avoid a negative impact on customer choice? If so, please specify what measures.***

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[6] "IMM Proposals" filed October 15, 2021, by Potomac Economics in Docket No. 52373 http://interchange.puc.texas.gov/search/filings/?UtilityType=A&ControlNumber=52373&ItemMatch=Equal&DocumentType=ALL&SortOrder=Ascending

[7] "Texas Industrial Energy Consumers' Market Design Proposal," filed September 30, 2021, by TIEC in Docket No. 52373 http://interchange.puc.texas.gov/search/documents/?controlNumber=52373&itemNumber=152

b. ***How can market power be effectively monitored in a market where owners of power generation also own REPs that serve a large portion of ERCOT's retail customers?***

c. ***What is the impact on self-supplying large industrial consumers who will have to comply with the LSE Obligation and will it impact their decision to site in Texas?***

d. ***What is the impact of an LSE Obligation on load-serving entities that do not offer retail choice, such as municipally owned utilities or electric cooperatives?***

e. ***Can market power be monitored in the bilateral market if an LSE Obligation is implemented in ERCOT? Can protective measures be put in place to ensure that market power is effectively monitored in ERCOT with an LSE Obligation? If so, please specify what measures.***

f. ***Should the LSE Obligation include a "must offer" provision? If so, how should it be structured?***

Jupiter Power believes that implementation of an LSE Obligation would require an extensive study done by a neutral party, and that should include consideration of a design that protects against the abuse of market power in both the wholesale and retail markets. Jupiter Power also notes the primacy of consumer choice that is at the heart of the Texas competitive retail market, and recent trends in demand reflect a growing consumer preference for clean power and new technology. The overarching goal to meet consumer demand, while at the same time protecting system reliability, should be considered in evaluating the effectiveness of any new capacity obligation and the range of technologies that are to be incented.

Regarding "f" Jupiter Power generally believes "must offer provisions" are not appropriate for the ERCOT market. One of the core tenets of the current ERCOT market design is the optionality granted to resource owner/operators to determine how to manage their resource. Providing this optionality ensures that resource operating decisions and financial considerations are managed by the parties who are most familiar with a resource's availability. From the perspective of maximizing the contribution of energy storage within overall system dispatch and

operation, it is possible that prescribing how an energy storage asset should be used, such as requiring a must offer, would severely restrict the benefits which an energy storage can offer to a grid, such as the ability to quickly respond to volatile real-time conditions, thus providing a level of capacity flexibility which cannot be replicated by more traditional generating units.

7. ***How should an LSE Obligation be accurately and fairly determined for each LSE? What is the appropriate segment of time for each obligation? (Months? Weeks? 24 hour operating day? 12 hour segments? Hourly?)***

Jupiter Power believes that an LSE Obligation would require a study by a neutral third-party to review its appropriateness and efficacy in the ERCOT market, as well as implementation details and has no response to this question at this time.

8. ***Can the reliability needs of the system be effectively determined with an LSE Obligation? How should objective standards around the value of the reliability-providing assets be set on an on-going basis?***

    a. ***Are there methods of accreditation that can be implemented less administrative burden or need for oversight, while still allowing for all resources to be properly accredited?***

    b. ***How can winter weather standards be integrated into the accreditation system?***

Jupiter Power believes that an LSE Obligation would require a study by a neutral third-party to review its appropriateness and efficacy in the ERCOT market, as well as implementation details and has no response to this question at this time.

9. ***How can the LSE Obligation be designed to ensure demand response resources can participate fully and at all points in time?***

Jupiter Power believes that an LSE Obligation would require a study by a neutral third-party to review its appropriateness and efficacy in the ERCOT market, as well as implementation details and has no detailed response to this question at this time.

However, in the instance of an LSE Obligation, Jupiter Power believes that ensuring demand response participation would be difficult unless aligning those payments for demand response to be greater than the associated costs to a load. Ideally, the value of capacity provided by demand could be valued similarly to that provided by generation.

10. How will an LSE Obligation incent investment in existing and new dispatchable generation?

Jupiter Power believes that an LSE Obligation would require a study by a neutral third-party to review its appropriateness and efficacy in the ERCOT market, as well as implementation details and has no response to this question at this time.

Instituting an LSE obligation in ERCOT would signal to developers and their investors that certain capability is needed by the market one, two, or three years out and that new load and buyers of that capability are more certain to exist based on planning forecasts.

11. How will an LSE Obligation help ERCOT ensure operational reliability in the real-time market (e.g., during cold weather events or periods of time with higher than expected electricity demand and/or lower than expected generation output of all types)?

As stated above, an LSE obligation would ensure for a number of years out, the existence of certain megawatts of capacity. However, ensuring the existence of new dispatchable generation does not equate to ensuring operational reliability in times of variability or frequency decay. As stated in TIEC September 30, 2021, comments, many of the issues ERCOT faces today are not due to a shortage of capacity but are operational issues due to unexpected variations in output due to outages or intermittency of resources.[8] In instances of unexpected outages or variations in availability of resource, what ERCOT needs is more flexible and fast-

[8] "Texas Industrial Energy Consumers' Market Design Proposal," filed September 30, 2021, by TIEC in Docket No. 52373 http://interchange.puc.texas.gov/search/documents/?controlNumber=52373&itemNumber=152

responding megawatts. The LSE obligation proposed does not ensure that operational problems will be addressed. Existing ancillary services or other new ancillary or services, instead could be used to firm up operational variations, by addressing need closer in time, by seasonality, and of the characteristics needed for certain grid variations.

12. What mechanism will ensure those receiving revenue streams for the reliability services perform adequately?

Administrative penalties coupled with some form of refund mechanism will be necessary for protecting the LSE that procured its obligation, which was not met in real time by the resource owner. This method of handling resource failure would best be managed centrally by ERCOT with oversight of the Public Utility Commission, similar to current mechanisms for failure to provide ancillary services.

13. What is the estimated market and consumer cost impact if an LSE obligation is implemented in ERCOT? Describe the methodology used to reach the dollar amount.

Jupiter Power believes that an LSE Obligation would require a study by a neutral third-party to review its appropriateness and efficacy in the ERCOT market, as well as implementation details and has no response to this question at this time.

14. How long will the LSE Obligation plan take to implement?

Jupiter Power believes that an LSE Obligation would require a study by a neutral third-party to review its appropriateness and efficacy in the ERCOT market, as well as implementation details and has no response to this question at this time.

15. If the Commission adopts an LSE Obligation, what assurances are necessary to ensure transparency and promote stability within retail and wholesale electric markets?

Jupiter Power believes that an LSE Obligation would require a study by a neutral third-party to review its appropriateness and efficacy in the ERCOT market, as well as implementation details and has no response to this question at this time.

16. Are there relevant "lessons learned" from the implementation of an LSE Obligation in the SPP, CAL-ISO, MISO, and Australian markets that could be applied in ERCOT?

Jupiter Power believes that an LSE Obligation would require a study by a neutral third-party to review its appropriateness and efficacy in the ERCOT market, as well as implementation details and has no detailed response to this question at this time. However, any study should include relevant lessons learned from other markets, but not be limited to the LSE Obligation as the method used in other markets to address operational variations. Other markets' methods or integrating a changing resource mix can also be considered. Additionally, the uniqueness of Texas' competitive wholesale and retail markets needs to be considered, as no lessons learned will be directly applicable.

III. CONCLUSION

Jupiter appreciates the opportunity to submit these comments and looks forward to continuing to work the Commission and stakeholders on the rules and design governing the ERCOT market.

Respectfully Submitted,

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PROJECT NO. 52373

REVIEW OF WHOLESALE ELECTRIC MARKET DESIGN	§ § §	**PUBLIC UTILITY COMMISSION OF TEXAS**

JUPITER POWER LLC'S COMMENTS ON OCTOBER 25TH COMMISSION QUESTIONS

Executive Summary

- Jupiter Power is supportive of a targeted, solutions-based approach to address the relative problems most efficiently, by first using existing technologies to the best of their firming abilities in order to support operational variability and secondarily by incenting more dispatchable capacity of longer duration resources to be online if/when needed for capacity, all at the lowest overall cost to the consumer.

- Jupiter Power also prioritizes a continued non-discriminatory approach to market design in Texas. While technology should not dictate reliability, reliability products should be narrowly tailored to produce desired outcomes, and should do so without stranding technology that has already been invested in. For example, in the case of battery energy storage technology in ERCOT, two-hour duration storage can be very useful to stabilize the grid at the ramp off period from a sudden outage, a high wind event or solar at sunset. In turn, that use would further encourage longer-duration storage to be available to support the grid as solar penetration increases.

- Jupiter Power is supportive of separating the ORDC into seasonal curves. Jupiter Power also continues to support other changes to the ORDC, especially those necessitated by a change to the HCAP. Jupiter Power has supported an incremental reduction to the HCAP in conjunction with adjustments to the ORDC, specifically through raising the MCL. In the alternative, Jupiter Power also would support further exploration of the IMM's proposal to reshape the ORDC and decouple the HCAP from the VOLL used in the ORDC, which would shift revenues without changing the MCL of the ORDC.

- Jupiter Power supports prioritizing the completed implementation of Real-time Co-optimization.

- Jupiter Power supports maintaining existing ancillary service eligibility as related to the existing ancillary service suite's relative procurement levels per service. Products like non-spin and ECRS should be used as designed.

- Jupiter Power agrees that the most efficient use of resources in order to firm variability capacity would optimize resources that are best suited to particular frequency problems, and free a greater amount of megawatts to otherwise be used for needed capacity.

- Jupiter Power believes that an LSE Obligation would require a study by a neutral third-party to review its appropriateness and efficacy in the ERCOT market, as well as implementation details. Jupiter Power would support review of alternative proposals at that time, such as Potomac Economics "Forward Shortage Energy Hedge" and TIEC's "Backup Reliability Service Proposal.

- While an LSE obligation would ensure for a number of years out, the existence of certain megawatts of capacity, ensuring the existence of new dispatchable generation does not equate to ensuring operational reliability in times of variability or frequency. In instances of unexpected outages or variations in availability of resource, what ERCOT needs is more flexible and fast-responding megawatts. The LSE obligation proposed does not ensure that operational problems will be addressed. Existing ancillary services or other new ancillary or services, instead could be used to firm up operational variations, by addressing need closer in time, by seasonality, and of the characteristics needed for certain grid variations.